

AMENDMENT TO THE ABSTRACT

A non-isolated, ~~low cost~~, switched-capacitor converter, ~~for providing auxiliary power for use in systems with a wide range of input voltages up to 600 Vdc. The converter delivers low output power with low EMI at efficiencies of around 70%. The output voltage is either fixed or adjustable. A control IC is provided for controlling~~ controls first and second semiconductor switches ~~in the switched-capacitor converter. The converter includes a load resistance and a load capacitance connected in parallel;~~ a first diode and a second diode connected in series, the diodes being connected in parallel with the output circuit; the first and second semiconductor switches connected in series; ~~the semiconductor switches being connected between the supply voltage input and the output circuit;~~ and a flying capacitance connected ~~across the second semiconductor switch and to the diode junction point. The load capacitance is~~ may be charged via the flying capacitance and the second diode in a charge cycle; and the load capacitance is may be discharged via the first diode and the flying capacitance in a discharge cycle. The control IC has a high side well powered by the input supply voltage which drives the first semiconductor switch; a floating well powered by the flying capacitor which drives the second semiconductor switch; and a control circuit powered by an output voltage. ~~The control circuit delivers a variable amount of charge to the load capacitance per unit time. It increases a discharge frequency in response to an increase in load power demand, and maintains a predetermined fixed discharge time, until the discharge frequency reaches a predetermined maximum. Then, the control circuit maintains the maximum frequency and increases the discharge time in response to an increase in load power demand.~~